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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,151	04/25/2000	TSUTOMU YAMAZAKI	15162/01860	9300

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SIDLEY AUSTIN BROWN & WOOD LLP
717 NORTH HARWOOD
SUITE 3400
DALLAS, TX 75201

EXAMINER

DO, ANH HONG

ART UNIT	PAPER NUMBER
2624	60


2624

DATE MAILED: 05/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 09/557,151	Applicant(s) Yamazaki et al.
Examiner Anh Hong Do	Art Unit 2624



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on Feb 20, 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-15 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) Other:

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 2/20/2003 have been fully considered but they are not persuasive.

* With respect to the Drawing, a review will take place upon the allowance.

* Regarding the Applicant's argument that the Ishikawa reference does not show or suggest a density conversion unit for reducing a density within the edge region, it should be noted Ishikawa does teach corrected edge image generating means corresponding to the claimed density conversion unit for eliminating minute edge images having density values smaller than a predetermined threshold value relative to the density value of each pixel of the edge image to generate a corrected edge image (col. 12, lines 39-44).

* The Applicant further contends that "the Ishikawa patent does not show or suggest a compression unit for compressing the image data within the edge region where the density difference is reduced". In contrast to the contention, Ishikawa clearly teaches reversible encoding means for encoding the corrected edge image within the edge image where the density difference has been eliminated (col. 12, lines 51-52).

For the foregoing reasons, it is believed the rejection should be sustained.

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Claim Rejections - 35 U.S.C. § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa et al. (U.S. Patent No. 5,862,264).

Regarding claim 1, Ishikawa discloses:

- a region detector 14 for detecting an edge region in an image data GA (Fig. 1);
- a density conversion unit for reducing a density difference within the edge region (col. 12, lines 39-44, teaches corrected edge image generating means corresponding to the claimed density conversion unit for eliminating minute edge images having density values smaller than a predetermined threshold value relative to the density value of each pixel of the edge image to generate a corrected edge image);
- a compression unit for compressing the image data within the edge region where the density difference is reduced by said conversion unit, using an affine transformation (Fig. 1: reversible image compression 16; and col. 12, lines 51-52, teaches reversible encoding means for encoding the corrected edge image within the edge image where the density difference has been eliminated);

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- an expansion unit for expanding the image data compressed by said compression unit 16 (Fig. 1: reversible decoding 22).

Although Ishikawa does not specifically teach using discrete cosine transform, it is well-known in the art and can be used in a reversible image compression such as a reversible compression unit 16 in Ishikawa for suppressing a decrease in image quality of restored images (col. 1, line 66 - col. 2, line 1). Therefore it would have been obvious to employ a DCT in the reversible compression unit in Ishikawa in order to obtain a high image quality of restored images.

Regarding claim 6, since this claim is a method claim corresponding to apparatus claim 1, the discussion of claim applies hereto.

Regarding claim 11, Ishikawa discloses computer programs (col. 1, lines 19-20) to perform the steps in claim 6 and the discussion of claim 6 therefore applies hereto.

Regarding claims 2, 3, 7, 8, 12, and 13, Ishikawa teaches converting N-bit image data into (N-1)-bit image data and increasing density value of the converted (N-1)-bit image data a certain amount (see Figs. 4(A) and 4(B)).

Regarding claims 4, 9, and 14, Ishikawa teaches an image reader for reading a document and generating an image data to be processed (col. 5, lines 37-42).

Regarding claims 5, 10, and 15, although Ishikawa does not specifically teach a printer for printing the expanded image data on a paper, the printer is well-known in the art and can be used in the form of a hardware such as one in Ishikawa for outputting the expanded image data (col. 5, lines 9-15), wherein the restored smoothed image data can be obtained (col. 5, lines 16-18).

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Therefore, it would have been obvious to use the printer as a hardware for outputting the expanded image data in Ishikawa in order to obtain the restored smoothed image.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh Hong Do whose telephone number is (703) 308-6720.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700 or 4750.

The fax phone number for this Group is (703) 872-9314.

April 29, 2003.

A handwritten signature in black ink, appearing to be "W. Smith" or similar, written in a cursive style.